COURSE DESCRIPTION CARD - SYLLABUS

Course name

Methodology of constructing machines for earth and road works

Course

Field of study

Construction and operation of means of transport

Year/Semester

2/3

Area of study (specialization)

Profile of study

general academic

Level of study

Second-cycle studies

Course offered in

Polish

Form of study

full-time

Requirements

compulsory

Number of hours

Lecture

0

Laboratory classes

0

Other (e.g. online)

0

Tutorials

15

Projects/seminars

0

Number of credit points

1

Lecturers

Responsible for the course/lecturer:

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tel. 61-6652225

Wydział Inżynierii Lądowej i Transportu

ul. Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:

Prerequisites

Knowledge: Has a basic knowledge of the construction and operation of earth and road machinery

Skills: Can use office software and basic CAD software

Social competences: Has basic communication skills and teamwork

Course objective

Systematizing general knowledge about construction and practicing how to use it to solve construction problems on specific examples from earth and road works machinery

Course-related learning outcomes

Knowledge

1. Knows the general organization and course of the machine construction process

2. Knows methods of structure optimization

3. Knows the basic methods of mathematical modeling of working machines

4. Knows computer software used to support the process of machine construction

Skills

1. Can organize the process of designing a working machine

Social competences

1. Develops teamwork skills and the ability to use modern information sources

2. Can use CAD software in the process of machine design

3. Can perform basic calculations in the process of designing machines

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Final project of exercise classes

Programme content

General machine construction algorithms. Formulating design requirements for earth and road machinery. Searching for design solutions, industry catalogs, patents, solutions available on the market. Heuritic techniques. Optimization in constructing machines for earth and road works - criteria functions and limitations. Geometric modeling. Strength calculations, selection of materials

Teaching methods

1. Exercises - project

Bibliography

Basic

1. Pahl g. Beitz W. Nauka konstruowania WNT

2. Pieczonka K. Inżynieria maszyn roboczych OWPW

Additional

1. Tarnowski W. Optymalizacja i polioptymalizacja w technice, Koszalin, 2011

2. Praca Zbiorowa red. Jan Szlagowski. Automatyzacja pracy maszyn roboczych. Metodyka i zastosowania

Breakdown of average student's workload

	Hours	ECTS
Total workload	60	3,0
Classes requiring direct contact with the teacher	15	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	45	2,0

[1] delete or add other activities as appropriate